

REMARKS

In the Office Action, the Examiner rejected claims 1-4, 7, 12-14, 22-29, 32-45, and 47. The claim rejections are fully traversed below. The claims have been amended to further clarify the subject matter regarded as the invention. In addition, claims 48-56 have been added. Claims 1-4, 7, 12-14, 18, 22-29, 32, 36-45, and 47-56 are now pending.

Reconsideration of the application is respectfully requested.

REJECTION OF CLAIMS UNDER 35 USC §103

In the Office Action, the Examiner rejected the claims under 35 USC §103 as being unpatentable over Rai et al, U.S. Patent No. 6,377,982 ('Rai' hereinafter) in view of Lee et al, U.S. Patent No. 6,535,493 ('Lee' hereinafter). This rejection is fully traversed below in view of the above claim amendments.

As described in the Background section of Applicant's specification, the Mobile IP Management Information Base (MIB) defines a set of variables that can be examined or configured by a manager station. This accounting information is typically stored on the corresponding network device (e.g., Home Agent or Foreign Agent) and therefore each network device may be periodically examined by the manager station. In other words, storage and updating of accounting information is typically dispersed among the network devices rather than stored at a centralized server. Although this information may be periodically polled by the manager station, this process is not dynamically performed (e.g., by a Home Agent or Foreign Agent). Moreover, such variables have not been implemented for the purposes of billing users associated with these mobile nodes. See Background section, pp. 3-4.

In accordance with various embodiments of the invention as claimed in claim 1, an accounting request is sent to a centralized server by a network device (e.g., Home Agent or a Foreign Agent) to update accounting information associated with the mobile node. Since this

information is centralized, it is possible to generate bills for a mobile node using the accounting information. The cited art, separately or in combination, neither discloses nor suggests the claimed invention. For instance, the cited art neither discloses nor suggests the use of a server that can receive accounting requests from various network devices (e.g., Home Agents and/or Foreign Agents) in order to record accounting information associated with various mobile nodes. In fact, the cited art discloses a system in which information stored at a network device such as a Home Agent or Foreign Agent is polled periodically.

The Examiner cites Rai as the primary reference. Specifically, the Examiner cites col. 2, lines 63-67 and col. 3, lines 1-6 and 12-16 of Rai. Rai does disclose a foreign accounting collection module and a home accounting collection module. See col. 2, lines 63-67. Specifically, the home and serving accounting collection modules collect accounting data on message traffic transported between the end system and a communications server. See col. 3, lines 12-17. However, Rai neither discloses nor suggests maintaining accounting information for mobile nodes supported by a plurality of Home Agents. Moreover, Rai neither discloses nor suggests the type of data collected by the accounting collection modules, or the manner in which that information is sent to the accounting server, as claimed. In fact, Rai indicates that the accounting server is located in the home network. See col. 16, lines 4-16 and FIGs. 14 and 24. As a result, Rai teaches away from an accounting server that supports a plurality of Home Agents.

Lee fails to cure the deficiencies of the primary reference. Lee relates to a Mobile Internet Communication Protocol, and specifically to routing information to a mobile unit in a data communications system having a home network and a remote network. See Title, Abstract. In col. 3, lines 25-32, Lee discloses registration of a mobile unit by providing a care-of address associated with the foreign agent to the home agent. In addition, the access point may be acting as the foreign agent or the home agent. Thus, the network device of Lee is an access point that supports Mobile IP, and therefore teaches away from the use of a server such as a AAA server that does not support Mobile IP and/or does not act as a Home Agent or a Foreign Agent to store and update information associated with Mobile Nodes that support Mobile IP. In addition, as recited in several of the pending claims, Lee teaches away from sending an accounting request in accordance with a AAA server protocol in order to update information associated with Mobile Nodes that support Mobile IP.

In addition, Lee fails to disclose various elements present in the pending claims. For instance, claim 1, as amended, recites “the network device adapted for sending the accounting request to a server in response to a trigger event, the accounting request both identifying the mobile node and including the counter.” Col. 10, lines 17-25 of Lee disclose the use of a timer counter of an access point that is used to determine whether the registration process had timed out. In no manner does Lee disclose or suggest sending a counter to a server such as that claimed (e.g., where the server does not operate as a Home Agent or a Foreign Agent, or does not support Mobile IP). As such, combining the cited references would fail to achieve operability as claimed.

Moreover, Lee fails to disclose a trigger event as claimed. Specifically, the Examiner cites col. 9, lines 45-53 of Lee. Specifically, col. 9, lines 45-53 of Lee discloses that registration replies are received by the mobile unit in response to its registration requests. If the registration reply has not been received within a predetermined time, the mobile unit sends another registration request to the AP currently serving the mobile unit. Rather, Lee relates solely to registration. Lee fails to disclose or suggest sending a counter to a server that is not a Home Agent or a Foreign Agent and/or does not support Mobile IP for the purposes of recording information associated with the Mobile Node. Moreover, in this example, the mobile node itself is sending a registration request. In other words, the trigger of Lee operates to trigger the mobile unit to send another registration request. Lee fails to disclose or suggest sending information from a Home Agent or Foreign Agent to a server as claimed. In other words, this failure to receive a registration reply within a predetermined time does not operate to trigger the Home Agent or Foreign Agent to send a counter to another server. Accordingly, Lee fails to cure the deficiencies of the primary reference.

Accordingly, the cited art teaches away from the use of a system in which information is centralized at a server (e.g., AAA server) and updated through the use of accounting requests sent by network devices such as Home Agents and Foreign Agents in association with various Mobile Nodes supported by multiple Home Agents. Moreover, since the admitted prior art and Rai teaches accounting information distributed among Home Agents or Foreign Agents rather than centralized at a server supporting multiple Home Agents, the prior art teaches away from maintaining accounting information for a plurality of Home Agents at a central server as recited in claim 1, for example.

With respect to claims 1, 3, 13, 23, 27, 37, and 39, the Examiner admits that the admitted prior art neither discloses nor suggests sending an accounting request including at least one counter to a server adapted for recording accounting information associated with the mobile node. The Examiner seeks to cure the deficiencies of the admitted prior art with RFC 2139, referring to page 8, section 4.2 Accounting-Response. However, while RFC 2139 teaches an accounting response and reply that are sent between a RADIUS accounting server and a client, RFC 2139 neither discloses nor suggests communicating with a Home Agent or Foreign Agent to dynamically update accounting information associated with a mobile node. Accordingly, it is respectfully submitted that the Examiner has failed to prove a prima facie case of obviousness. Accordingly, it is submitted that claims 1, 3, 13, 23, 27, 37, and 39 are patentable over the cited references.

The Examiner admits that the admitted prior art neither discloses nor suggests that the counter indicates a number of packets received by the mobile node or a number of packets sent from the mobile node. Again, the Examiner refers to RFC 2139, stating that the reference teaches a counter that indicates a number of packets and number of bytes received and sent to the mobile node. Applicant respectfully traverses this assertion. Specifically, the cited portion (page 9, lines 10-15 of RFC 2139) merely refer to RADIUS attributes, and the use of an accounting request marking the beginning of the user service (start) or the end (stop), as referred to on page 4, line 28 – page 5, line 8 of the Background section of Applicant's specification. As disclosed in the Background section of Applicant's specification, a time stamp such as a START and STOP time stamp is not easily implemented in a Mobile IP environment, since each mobile node may roam to numerous Foreign Agents while communicating with a given corresponding node. Moreover, RFC 2139 neither discloses nor suggests using a specific counter indicating a number of packets or bytes received or sent by the mobile node. Rai fails to cure the deficiencies of the primary references. Accordingly, the prior art teaches away from a system in which accounting requests are used to update accounting information at a central server in a Mobile IP environment. Accordingly, Applicant respectfully submits that claims are patentable over the cited references.

With respect to claims 4, 26, 28, 38, and 40, the Examiner admits that the admitted prior art fails to teach that the accounting reply acknowledges logging of accounting information pertaining to the mobile node, and refers to RFC 2139. For the reasons set forth

above, the cited art, separately or in combination, neither discloses nor suggests the logging of accounting information in a Mobile IP environment in response to an accounting request from a Home Agent or a Foreign Agent. Accordingly, Applicant respectfully asserts that claims 4, 26, 28, 38, and 40 are patentable over the prior art.

The claimed invention enables an accounting request to be sent under various circumstances (e.g., after a specific number of packets have been sent or received by a mobile node) where the accounting request includes at least one counter, indicating at least one of a number of packets or bytes sent or received by the mobile node, or a total service time. In this manner, a bill may be generated for this period of time or amount of information transmitted.

The dependent claims depend from one of the independent claims and are therefore patentable over the admitted prior art in view of the cited art for at least the same reasons. However, the dependent claims recite additional limitations that further distinguish them from the cited references. Hence, it is submitted that the dependent claims are patentable over the cited art.

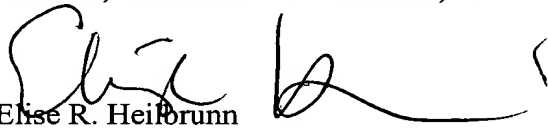
Based on the foregoing, it is submitted that the independent claims are patentable over the cited references. In addition, it is submitted that the dependent claims are also patentable for at least the same reasons. The additional limitations recited in the independent claims or the dependent claims are not further discussed as the above discussed limitations are clearly sufficient to distinguish the claimed invention from the admitted prior art and the Mobile IP reference. Thus, it is respectfully requested that the Examiner withdraw the rejection of the claims under 35 USC §103(a).

SUMMARY

Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388 (Order No. CISCPO77)

Respectfully submitted,
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